ABSTRACT OF THE DISCLOSURE

A stator 10 has a pair of pole parts 11 extending inwardly in opposite directions. The pole parts 11 are wrapped with inductance coils 12. A rotor 14 is equipped with a pair of permanent magnets 13 that essentially face toward the pole parts 11. The permanent magnets 13 are magnetized radially, and are shifted angularly from positions in direct radial alignment with the pole parts 11. An excitation current is applied to the coils 12 to cause the rotor 14 to move through a specific angular range by a magnetic field induced in the pole parts 11 and magnetic fields of the permanent magnets 13. The radial misalignment between the pole parts 11 and the permanent magnets 13 improves the performance characteristics of the rotary solenoid.